

2. Antennae blackish, or deep mahogany brown, scape very swollen without dorsal, subapical notch; halteres very pallid; scutellum black; boreal and northwestern species *americana* (O.S.)
Antennae brown and red, scape not especially swollen and with a strong dorsal notch, subapically; halteres with knobs predominantly brown; scutellum with grayish bloom; Pennsylvania and Rhode Island *champlaini*, new species
3. Scape swollen, without dorsal notch (plate slender and much longer than the flagellum); fore tibiae hardly, if any, more swollen than the others; mid-Atlantic Coast States *rara* (Jhns.)
Scape with a strong subapical, dorsal notch; fore tibiae strongly dilated 4
4. Palpi slender, longer than antennal scape which is moderately dilated basad of the notch (plate and flagellum chunky, subequal in length); hind-tibial rings definite, at least basally; knobs of halteres entirely brown; northern Florida
..... *punctulata* (Macq.)
Palpi robust, subequal in length to the more slender scape (plate and flagellum slender, the former a little longer); hind tibial rings less definite; seams of halteres pale; California
..... *willistoni*, new species

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- Stone, A., 1938. The horseflies of the subfamily Tabaninae of the Nearctic Region. U. S. Dept. Agr. Misc. Publ. No. 305, p. 171.

A NEW CENTRAL AMERICAN MILLIPED OF THE GENUS PLATYRHACUS

(POLYDESMIDA, PLATYRHACIDAE)

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A large and striking milliped, found in the unworked neotropical material belonging to the U. S. National Museum, represents a very interesting undescribed species. A name is herewith proposed, and the opportunity taken to present some comments upon certain other species belonging to the genus *Platyrhacus*.

In another paper, now in press, I suggested that Koch's name *Platyrhacus* be restricted to the group of species of which *clathratus* Gervais, *montivagus* Carl, *pococki* Brolemann, and *javarynus* Schubart are representatives. It is the largest group of American platyrhacids, embracing at the present time some 29 species, and ranging from Costa Rica south to the upper Amazon basin in northeastern Peru. Under the name *Tirodesmus*, it was treated by Attems in 1938 as a

subgenus of *Platyrhacus*. But *Tiroidesmus* in Attems' usage included, in addition to the present ensemble, also members of several other genera, such as *Psammodesmus*, *Nyssodesmus*, and *Aymaresmus*, as well as *Tiroidesmus* in its original sense.

A satisfactory treatment of the species of *Platyrhacus* is virtually impossible at the present, owing to several handicaps. First, several of the South American genera proposed by O. F. Cook in 1896 were based upon female specimens or upon specimens no longer available for study. A considerable number of Cook's genera remain to be evaluated. Some of them are almost certainly congeneric with *Platyrhacus*.

Second, numerous species have been founded upon female specimens, and until such a time as males have been collected, such entities must be considered *species inquirendae*. In fact, some of the earliest described forms, including *P. scaber* (Perty), *P. bilineatus* (Lucas), and *P. mexicanus* (Lucas) fall into this lamentable category.

Still, although no comprehensive study of the genus can be made at this time, it seems advisable to make some attempt at synthesis with the hope that other workers will find the information of some value. I believe that an emended diagnosis of *Platyrhacus* is in order, with a list of the adequately described species which conform to the stipulated characters. Some notes on synonymy and new combination are also given.

Genus **Platyrhacus** C. L. Koch

Platyrhacus C. L. Koch, 1847, Syst. der Myriapod., p. 58. Pocock, 1909, Biol. Centr.-Amer., Diplop., p. 138. Hoffman, 1953, Journ. Wash. Acad. Sci., in press.

Tiroidesmus (non Cook, 1896) Attems, 1938, Das Tierreich, lief. 69, p. 229 (in part).

Type species.—*Polydesmus scaber* Perty (as determined by Koch, *op. cit.*) by designation of Cook, 1896. Attems has sought to replace this type with a species belonging to an entirely different genus, as I have already pointed out.

Diagnosis.—Platyrhacidae in which the body is of medium to large size (10-20 mm in width); lateral carinae well developed, horizontal, their lateral margins serrate or dentate, front and rear margins subparallel; pores removed from edge of keel usually by a distance of four or five times their diameter; preanal scale subtrapezoid, its setiferous tubercles large and conspicuous; and male gonopods very simple, composed of a small, ovoid coxa, heavily setose prefemoral portion (lacking any trace of a prefemoral process) imperceptibly merging into the femur, forming a nearly straight trunk; tibiotarsus represented by a thin laminate process from near the base of which projects a simple digitiform solenomerite; these distal elements are curved or bent slightly back in the direction of the coxa.

The gonopods are rather constant in their general pattern throughout the genus, and for specific characters appeal is usually made to small details of body form, color pattern, and size, in which characters occur considerable interspecific variability.

To the best of my knowledge, no one has yet proposed a formal distinction between the two species-groups of platyrhacids which occur in Central America. Pocock (*op. cit.*, p. 139) seems to be the first author to recognize them, and Attems (*op. cit.*, p. 229) stated the primary means of distinction between the two in the first couplet of a key, which was "Gonopodenfemur gerade" as opposed to "Gonopodenfemur mit einem starken Knie im rechten Winkel abbiegend." Now it is true that in 1896 Cook proposed the name *Nyssodesmus* for a Nicaraguan species the gonopods of which were bent as described by Attems, but as I have said, it is not possible to be sure that any of the other species described by Cook were congeneric with the *Platyrhacus* species as here understood. In his paper on Central American millipeds (1922), Chamberlin used *Nyssodesmus* for all of the species known from that region in much the same way that Attems used *Tiroidesmus* in 1938. In view of the remarkable degree of infrageneric stability in gonopod pattern which obtains in most platyrhacids, I think it not only convenient but systematically justifiable to resurrect *Nyssodesmus* as a valid genus, embracing the following species: *N. alboalatus* Cook (the generotype), *N. tristani* (Pocock), *N. antius* (Chamberlin), *N. minus* Chamberlin, *N. bivariegatus* (Carl), and *N. limonensis* (Attems). All of these species are restricted to Nicaragua and Costa Rica.

Attems' treatment of the Neotropical platyrhacids in his 1938 monograph accounted for "19 sichere und 3 unsichere Arten." Of these species, one (*fimbriatus*) is referable to the monotypic genus *Tiroidesmus*; another (*helophorus*) may be reallocated, on the basis of smooth-margined keels, to *Aymaresmus*; two (*fasciolatus* and *camerani*) belong to the genus *Psammodesmus*; and two more are best considered unidentifiable (*bilineatus* and *mexicanus*). Of the remaining species, six (listed in the preceding paragraph) belong to *Nyssodesmus* and eight to *Platyrhacus*.

Nyssodesmus valeri Chamberlin (1933) from Costa Rica does not seem to differ in any respect from *Platyrhacus montivagus* Carl (1902) from the same country. *N. albo-marginis* Chamberlin, described in the same paper, appears to be identical with *Platyrhacus biolleyi* Carl, a probability further enhanced by the fact that the type specimens of both came from the same place (La Palma, Costa Rica)! Chamberlin has postulated conspecificity between *biolleyi* and Peters'

much older name *fimbriatus*; if this surmise is correct, *albomarginis* may be disposed of in the synonymy of *fimbriatus*.

Since the publication of Attems' monograph, fourteen species of *Platyrrhacus* have been described by Chamberlin (1941) from northeastern Peru. One of them (*cainarachus*) has recently been transferred to *Psammodesmus*, following my examination of its type specimen. Several others of Chamberlin's species, based upon females, are, as their author states, somewhat aberrant and only tentatively placed in *Platyrrhacus*.

The recent description of *P. javaryuus* by Schubart (1950) brings the number of tolerably recognizable species in the genus to 29. A list follows the description of the new species from Panama, which I am pleased to name for Dr. E. A. Chapin, who has done so much to facilitate my studies of the National Museum collections.

***Platyrrhacus chapini*, new species**

(Figs. 1-3)

Holotype.—Male, U.S.N.M. no. 2079; from Los Sigüas, Chiriquí, Panamá, collected by Henri Pittier on March 17, 1911.

Diagnosis.—A *Platyrrhacus* characterized primarily by the absence of yellow markings and by the bifid tip of the tibiotarsus of the male gonopod.

Description.—The following notes were made from the type specimen: length, ca. 76 mm., width, 15.7 mm. Entire dorsum dark brown, almost black, without any traces of yellow pigment. Underparts more reddish brown, especially basal articles of legs.

Head of the usual form; a prominent calloused tubercule on each side of the vertex above the antennal socket; latter with a definite ridge on its upper margin. Frons with a median triangular area of small flattened granules; labrum narrow, transverse, smooth and flat, with four setigerous pores.

Disk of collum very finely granulose, front margin set off by a shallow groove, and beset with small crowded tubercules. Lateral ends of collum evenly acuminate, the rear margin with a fine ridge, the front margin with three small teeth near the end on each side.

Dorsum of most segments granular, the keels being also tuberculate (many of the tubercules are concave, many have radiating grooves). Metazonites slightly arched, keels nearly horizontal, interrupting slope of dorsum. Prozonites very finely and densely granular. Front and rear margins of midbody keels nearly smooth and subparallel (caudal margins slightly concave and sometimes dentate); lateral margins usually with four, occasionally with three or five prominent teeth, fig. 1. Caudal angles of keels of 13th-19th keels produced posteriorly, those of the 19th rounded.

Anal valves granular, their mesial margins thick and becoming much wider in approaching the telson. Preanal scale subtrapezoidal, its setiferous tubercles large; basal margin convex and overlapping caudal margin of 19th sternite; entire scale considerably swollen, particularly so basally.

Sternites with a conic tubercle at the base of each leg. Legs, especially the tarsi, moderately setose.



Fig. 1, *Platyrhacus chapini*, keel of left side, 10th segment; fig. 2, left gonopod of male, dorsal aspect (the face held against the sternite when at rest); fig. 3, left gonopod, mesial aspect (*s*-solenomerite).

A small series of spines or bicuspid tubercles occur on the caudal margins of the metazonites above the second pair of legs of each segment. Pleurites otherwise finely granular.

Male gonopods, figs. 2, 3, of the typical *Platyrhacus* appearance. Tracheal rod about as long as coxite, and slightly sinuate. Coxite sub-ovoid, its lateral side with a few long setae. Prefemur only very slightly swollen, rather heavily setose on its lateral and outer surfaces, its inner surface conspicuously pleated. Femoral portion (glabrous) short, its inner edge expanded slightly. Tibiotarsus represented by a thin, hyaline lamina having an abruptly tapering distal acumen which is subtended by an accessory spiniform process of nearly equal size. Solenomerite short, evenly tapering, somewhat sigmoid. Sternal aperture of gonopods of moderate size, broadly oval but with the lateral ends tending to appear obtusely angular. Caudal margin of aperture with a raised rim.

Relationships.—The only other species of *Platyrhacus* known to me in which the end of the tibiotarsus is notched or bifid

is *P. chuncho* Chamberlin from Peru. In all other respects, however, there is little close resemblance between that species and *chapini*. Probably a nearer relationship occurs with *P. fraternus* Carl, a Costa Rican species which differs chiefly in having the margins of the keels yellow.

Platyrhacus chapini is the first member of the genus to be reported from Panamá. Heretofore the boundaries of that Republic have encompassed a hiatus between the Costa Rican and Colombian populations.

THE SPECIES OF PLATYRHACUS

The following list is arranged in alphabetical order, and designed to provide an indication of the distribution of each species as well as citation to the original description and in some cases supplementary literature references.

- acompus* Chamberlin (PERÚ: Iquitos)
1941, Bull. Amer. Mus. Nat. Hist., 78: 491, ff. 103-107.
- acquinotius* Attems (ECUADOR: Quito)
1914, Arch. Naturg., 80 (A 4): 249.
- acquitocalis* Silvestri (ECUADOR: San Jose)
1897, Boll. Mus. Torino, 12 (305): 16, f. 42.
- atratus* Chamberlin (COLOMBIA: Atrato River)
1947, Proc. Acad. Nat. Sci. Phila., 99: 34, f. 22.
- balsapuetus* Chamberlin (PERÚ: Moyobamba)
1941, Bull. Amer. Mus. Nat. Hist., 78: 491, figs. 108-112.
- bombonus* Chamberlin (PERÚ: Rio Bombo, Alto Tapiche)
1941, Bull. Amer. Mus. Nat. Hist., 78: 491, ff. 113-115.
- brolemanni* Attems (Locality unknown)
1914, Arch. Naturg., 80 (A4): 250.
- chapini* Hoffman (PANAMÁ: Los Siguas)
1953, Proc. Ent. Soc. Wash., 55: 254, figs. 1-3.
- chuncho* Chamberlin (PERÚ: Contayo, Alto Tapiche)
1941, Bull. Amer. Mus. Nat. Hist., 78: 493, ff. 136-139.
- clathratus* (Gervais) (COLOMBIA: ?Bogota)
1847, Hist. nat. Ins., Apt., 4: 108.
1900, Brolemann, Mem. Soc. Zool. France, 13: 113.
- contayus* Chamberlin (PERÚ: Contayo, Alto Tapiche)
1941, Bull. Amer. Mus. Nat. Hist., 78: 492, ff. 118-123.
- dunali* (Gervais) (COLOMBIA)
1847, Hist. nat. ins., Apt., 4: 109.
1900, Brolemann, Mem. Soc. Zool. France, 13: 113, ff. 83-84.
- fraternus* Carl (COSTA RICA)
1902, Rev. Suisse Zool., 10: 655, f. 71.
- gualaquizensis* (Silvestri) (ECUADOR: Gualaquiza)
1897, Boll. Mus. Torino, 12 (305): 17, f. 43.
- incus* Chamberlin (PERÚ: Rio Alto Marañon)
1941, Bull. Amer. Mus. Nat. Hist., 78: 492, ff. 124-126.

- javarynus* Schubart (BRAZIL: Amazonas, Rio Javari)
1950, Pap. Avul. Dept. Zool., 9 (11): 149, f. 4.
- loretus* Chamberlin (PERÚ: Pongo de Manseriche)
1941, Bull. Amer. Mus. Nat. Hist., 78: 492, ff. 127-130.
- mansericus* Chamberlin (PERÚ: Pongo de Manseriche)
1941, Bull. Amer. Mus. Nat. Hist., 78: 493, ff. 131-135.
- montivagus* Carl (COSTA RICA: Volcan Turrialba)
1902, Rev. Suisse Zool., 10: 662, ff. 84-88.
- pococki* Brolemann (COSTA RICA: Rancho Redondo)
1911, Bull. Soc. ent. France, 1: 14.
- propinquus* Carl (COSTA RICA: Santa Clara)
1902, Rev. Suisse Zool., 10: 665, ff. 80-82.
- retentus* Chamberlin (PERÚ: Dept. of Loreto)
1941, Bull. Amer. Mus. Nat. Hist., 78: 493, ff. 140-141.
- riparius* Carl (COSTA RICA: Rio General)
1902, Rev. Suisse Zool., 10: 641, f. 83.
- socius* Chamberlin (PERÚ: Iquitos)
1941, Bull. Amer. Mus. Nat. Hist., 78: 493, ff. 142-146.
- stenopterus* Brolemann (COSTA RICA: Rancho Redondo)
1905, Ann. Soc. ent. France, 74: 343.
- strenuus* Silvestri (ECUADOR: Rio Bamba)
1897, Abh. Mus. Dresden, 6 (9): 19, ff. 32-34.
- tenebrosus* (Silvestri) (ECUADOR: Rio Peripa)
1898, Boll. Mus. Torino, 13 (324): 3, f. 3.
- trichotyphus* Chamberlin (PERÚ: Tabalosas-Chasuta)
1941, Bull. Amer. Mus. Nat. Hist., 78: 493, ff. 147-151.
- utoquinus* Chamberlin (PERÚ: La Frontera, Alto Utoquinia)
1941, Bull. Amer. Mus. Nat. Hist., 78: 494, ff. 152-154.
- zyggethus* Chamberlin (PERÚ: Moyobamba)
1941, Bull. Amer. Mus. Nat. Hist., 78: 494, ff. 155-158.

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- Schubart, O., 1950. Novos Diplopodos do Brasil. Pap. Avul. do Dept. Zool., São Paulo, 9 (11): 145-157, 9 figs.

IDENTIFICATION OF ALASKAN BLACK FLY LARVAE

(DIPTERA, SIMULIIDAE)

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This paper is one of several on black fly taxonomy and biology based on field work carried on from April to November by the 1948 Alaska Insect Project.² Since it concerns the identification of larvae only, it might be considered supplementary to a paper by Stone,³ which includes keys to, and descriptions of, males, females, and pupae as well as species distribution as determined from collections of pupae and adults. A third paper, dealing with the bionomics and the geographic and seasonal distribution of the immature forms, is in preparation.

Population samples of immature forms were taken weekly from 15 streams in the vicinity of Anchorage and 12 near Fairbanks and also from approximately 260 locations on streams along the main highways of Alaska, which were visited three times during the summer. Larvae and pupae were removed with forceps from their places of attachment and placed usually in procaine tubes containing 75 to 80 percent ethyl alcohol, although occasionally methyl alcohol had to be used. Pupae were prepared for rearing by carefully removing the dark ones with forceps and placing them on moist towel paper in individual shell vials. The vials were plugged lightly with cotton and kept at cool room tempera-

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²This project was conducted under a transfer of funds from the Department of the Army to the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture.

³Stone, Alan, 1952. The Simuliidae of Alaska (Diptera). Proc. Ent. Soc. Wash. 54 (2): 69-96.